AMERICAN MUSEUM NOVITATES

Number 403 — Published by THE AMERICAN MUSEUM OF NATURAL HISTORY New York City — Feb. 28, 1930

59.57, 72 B

NEW SPECIES OF DIPTERA BELONGING TO THE GENUS *BACCHA* FABRICIUS (SYRPHIDÆ)

BY C. H. CURRAN

I have vainly attempted to find some character by which to separate *Ocyptamus* from *Baccha*. In typical species of *Ocyptamus* the abdomen has parallel sides and large third antennal segment and in the females the second antennal segment projects, on the inner side, triangularly into the third: this applies to a lesser degree in the males of some species. The two groups have so many forms connecting them, regardless of the character used, that the only justifiable course is to consider all the species as belonging to one genus.

In the preparation of the key I have included only those species of which I have representatives, and almost half of the described species are omitted. The number of species is quite large, as might be expected, since this genus replaces *Syrphus* and *Epistrophe* in the American tropics. The larvæ are beneficial and feed upon aphids, mealy bugs, and probably scale-insects. The pupæ are of peculiar shape, being suddenly flattened behind the middle and remarkably short when one considers the length of the adult insect.

In order to clear up some of the confusion existing in regard to several of the species described by older authors, I present records of new and recent synonymy.

BACCHA Fabricius

FABRICIUS, 1805, 'Syst. Antl.,' p. 199.
Ocyptamus MACQUART, 1834, 'Hist. Nat. Dipt.,' I, p. 554.

TABLE OF SPECIES

1. Face black or with a median black or brown vitta at least above or below the tubercle.....32.
   Face yellowish or reddish, the oral margin rarely blackish.....2.
2. Third antennal segment much longer than the first or second.....3.
   All the antennal segments of nearly equal length.....*atypica*, n. sp.
3. Scutellum wholly black or brown.....4.
   Scutellum partly or wholly reddish or yellow.....5.
4. Abdomen in part steel-blue (West Indies).....*cylindrica* Fabricius.
   Abdomen partly bronzed, never steel-blue.....*fuscipennis* Say.

5. Wings with a disconnected small apical brown spot ..... 6.
Wings without disconnected apical spot ..... 7.
6. Disc of scutellum shining black ..... *exigua* Williston.
Scutellum wholly pale ..... *lineata* Macquart.
7. Scutellum with definite black or brown markings ..... 8.
Scutellum yellowish or reddish, the discal markings never black or brown, although often darker than the margins ..... 11.
8. Base of scutellum narrowly stramineus ..... 9.
Base of scutellum blackish ..... 10.
9. Costal border strongly brown, sharply contrasting with the hyaline posterior part ..... *dolosa* Williston.
Wings pale brown, paler basally ..... *bromleyi* Curran.
10. Wings with a large median brown triangle or uniformly grayish, the base always brown ..... *gastrostactus* Wiedemann.
Wings rich brown on basal half or more or pure hyaline sub-basally ..... 11.
11. Wings hyaline with a brown fascia or triangle at the middle ..... 12.
Wings differently colored ..... 13.
12. Anterior cross-vein situated at basal fifth of discal cell .... *lemur* Osten Sacken.
Anterior cross-vein beyond basal third of discal cell .... *fascipennis* Wiedemann.
13. Sides of mesonotum broadly yellow or reddish ..... 15.
At most the humeri, notopleura, and posterior calli yellowish or reddish ..... 14.
14. Second abdominal segment wider than long ..... *scutellatus* Loew.
Second abdominal segment almost twice as long as wide .... *funebris* Macquart.
15. Pleura yellowish on its whole length ..... 16.
Pleura blackish or at least with an entire black fascia which is not interrupted by the posterior spiracle ..... 23.
16. Ventral scutellar fringe yellow and composed of abundant long, fine hair. *persimilis* Williston.
Ventral fringe black, usually very short ..... 17.
17. Mesonotum ochreous, usually with shining black vittæ ..... 18.
Mesonotum shining blackish with two metallic reddish vittæ .. *croacea* Austen.
18. Second abdominal segment very much longer than wide ..... 19.
Second abdominal segment not longer than wide, very strongly narrowed on basal half ..... *flavipennis* Wiedemann.
19. Sternum wholly yellowish or reddish ..... 21.
Sternum black ..... 20.
20. Abdominal segments with three black vittæ ..... species, Brazil.
Abdominal segments with four black vittæ ..... *notata* Loew.
21. Median black mesonotal vittæ wider than the intervening pale vitta ..... 22.
Median black mesonotal vittæ narrower than the intervening pale vitta. *livida* Schiner.
22. Yellow markings on third and fourth abdominal segments in form of inverted V. *placiva* Williston.
Yellow markings forming more or less continuous vittæ .... *phæoptera* Schiner.
23. Second abdominal segment not twice as long as wide ..... 24.
Second abdominal segment at least twice as long as wide ..... 27.
24. Abdomen strongly narrowed basally, at least widest on apical half ..... 26.
Abdomen broad, not spatulate ..... 25.

25. Third abdominal segment with an anteriorly broadened median black vitta cutting across the yellow band ..... *lepida* Macquart.
Third segment with a very obscure line of black connecting the two black fasciæ. *cultrata* Austen.
26. The lateral black markings on the third abdominal segment strongly converge anteriorly ..... *pumilla* Austen.
The lateral black markings form basal triangles at the sides of the segment. *crocata* Austen.
27. Wings with brown tinge at least in front ..... 28.
Wings hyaline with brown stigmal cell ..... 57.
28. Apical segments of posterior tarsi yellow ..... 29.
Apical segments of posterior tarsi brownish ..... *mentor*, n. sp.
29. Hind tibiæ wholly yellowish ..... 30.
Hind tibiæ broadly brown apically ..... 31.
30. Second abdominal segment with interrupted yellow fascia ..... *vierecki*, n. sp.
Second abdominal segment with entire yellow fascia behind the middle. *crocata* Austen.
31. Costal border brownish on at least basal half ..... 58.
Wings almost uniformly colored, slightly darker on apical part .. *prenes*, n. sp.
32. Face with a conspicuous tubercle ..... 36.
Face with a scarcely perceptible tubercle ..... 33.
33. Cross-veins bordered with brown ..... 34.
Cross-veins not bordered with brown ..... 59.
34. Mesonotum shining black ..... 35.
Mesonotum reddish with brown median vitta in front .... *rubida* Williston.
35. Second abdominal segment reddish ..... *bigoti* Austen.
Second abdominal segment black ..... *incompta* Austen.
36. Abdomen not at all constricted on second segment and always shorter than the wings ..... 37.
Abdomen constricted basally or longer than the wings ..... 38.
37. Wings uniformly colored on whole length in front ..... *latiusculus* Loew.
Wings paler on apical third or more ..... *dimidiatus* Fabricius.
38. Oral margin more prominent than the tubercle ..... *clavatus* Fabricius.
Oral margin not as prominent as the tubercle ..... 39.
39. Sixth abdominal segment of female not longer than fourth ..... 41.
Sixth abdominal segment much longer than fourth segment and cylindrical .. 40.
40. Wings hyaline on apical half ..... *telescopica*, n. sp.
Wings hyaline on apical fourth ..... *peruviana* Shannon.
41. Legs entirely black ..... 42.
Legs partly yellow ..... 43.
42. Apical cross-vein very little curved ..... *signifera* Austen.
Apical cross-vein conspicuously bisinuate (*punctata* Shannon?) *adspersa* Fabricius.
43. Wings hyaline with a transverse median triangle and the base brown. *lemur* Osten Sacken.
Wings differently marked ..... 44.
44. Anterior four femora black or brown, the apex narrowly pale ..... 45.
Anterior four femora mostly reddish or yellow ..... 50.

45. Posterior femora and tibiæ with short, appressed pile....46.
Posterior femora and tibiæ with abundant, long suberect pile..*pilipes* Schiner.
46. Scutellum with whitish pile....47.
Scutellum black-haired dorsally....48.
47. Occipital cilia white; fifth abdominal segment with white hair. *shropshirei*, n. sp.
Occipital cilia black; fifth abdominal segment with black hair....*zeteki*, n. sp.
48. Face yellow laterally....49.
Face wholly steel-blue....*panamensis*, n. sp.
49. Pteropleura black-haired....*nitidula*, n. sp.
Pteropleura with pale pile....*clarapex* Wiedemann.
50. Stigmal cell uniformly brownish or luteous....51.
Stigmal cell with a deep brown basal spot, pale apically....*cognata* Loew.
51. Sides of mesonotum yellowish in front of the suture....52.
Sides of mesonotum not yellowish between humeri and notopleura....54.
52. Disc of scutellum blackish....53.
Scutellum wholly yellowish....*stenogaster* Williston.
53. Yellow side margins of the mesonotum broadly interrupted behind the suture. *carlota* Curran.
Yellow side margins entire....*ornatipes* Curran.
54. Wings extensively brown....55.
Only the stigmal cell brown....*deceptor*, n. sp.
55. Scutellum wholly blue-black....*costata* Say.
Scutellum brownish red, darker basally....56.
56. Abdomen with parallel sides....*funebris* Macquart.
Abdomen narrowed basally (*lugubris* Williston)....*mexicana*, n. name.
57. A black spot above the antennæ....*chapadensis*, n. sp.
No black spot above the antennæ....*macer*, n. sp.
58. The brown costal border is evanescent apically....*murina*, n. sp.
The brown costal border extends to the apex of the wing...*punctifrons* Williston.
59. The black of the third and fourth abdominal segments is bisected for most of its length by a very broad reddish vitta....*gowdeyi* Curran.
The black is not bisected by a pale vitta....*gracilis* Williston.

Baccha telescopica, new species

Related to *peruviana* Shannon but at once distinguished by having the wings hyaline on the apical half. The apical two abdominal segments are greatly elongate and polished black, being almost as long as the remainder of the abdomen. Length, 12.5 to 15.5 mm.

FEMALE.—Head steel-blue; occiput, face, except the large tubercle and a narrow orbital triangle below the middle of the front, whitish pollinose. Front opaque brown from the ocelli to the middle but with dull black vitta dividing the brown color on its anterior half; antennal tubercle black above. Pile black; on the lower two-thirds of the occiput pale yellowish. Antennæ brownish red, the third segment and arista brownish, the third segment hardly twice as long as wide.

Mesonotum and scutellum shining black, thinly brown pollinose, clothed with moderately short, sparse black hair, the scutellum with black ventral fringe; no

collar of hair on the front of the mesonotum. Pleura and sides of the mesonotum in front of the suture steel-blue, white pollinose and pilose.

Legs brown; apices of femora and broad bases of the tibiæ reddish yellow; posterior tarsi yellow with the apical segment wholly and the basal three-fourths of the first segment brown. Anterior tarsi slightly broadened and flattened.

Wings with the basal half and stigma brown, the apical half cinereous hyaline. Squamæ and halteres yellow, the former with brownish yellow fringe.

Abdomen with the intermediate segments brownish red; basal segment steel-blue with the broad apex brownish red; fifth and sixth segments shining black, the sixth without hair and forming a cylindrical tube. Second, third, and fourth segments broadly orange basally except in the middle, the pale color not sharply limited nor regular in outline. Pile black; white on the sides of the first segment and on the first sternite.

TYPES.—Holotype, female, Barro Colorado Island, Canal Zone, December 22, 1928. Paratype, female, Barro Colorado Island, December 27, 1928, (Curran).

Shannon described both sexes of *peruviana* erecting a new subgenus, *Pelecinobaccha*, for the species. *B. peruviana* has the sides of the face yellowish. The male of *B. telescopica* may be separated from the species described by Shannon and also those related to *dimidiatus* Fabricius by the wholly black face.

It seems likely that this species will be found to have an interesting life history. The elongate ovipositor might suggest that the larvæ are predacious upon coccids or aphids which live on the roots of plants. The specimens were both taken in the banana plantation to the left of Shannon's Cove, looking toward the canal from the Barro Colorado Laboratory.

Baccha latiusculus Loew

Ocyptamus latiusculus LOEW, 1866, Berl. Ent. Zeitschr., X, p. 39.
?Ocyptamus proximus SCHINER, 1868, 'Novara Reise,' Dipt., p. 346.
?Ocyptamus infuscatus BIGOT, 1884, Ann. Soc. Ent. France, p. 324.

Without an examination of the types it is not possible to state definitely that these names represent a single species but, from the descriptions, it seems probable that such is the case.

Baccha gastrostactus Wiedemann

Syrphus gastrostactus WIEDEMANN, 1830, 'Ausser. Zweifl.,' II, p. 123.
Syrphus trigonus WIEDEMANN, 1830, 'Ausser. Zweifl.,' II, p. 126.
Pipiza costalis WALKER, 1837, Trans. Linn. Soc. London, XVII, p. 342.
Pipiza pica WALKER, 1857, Trans. Ent. Soc. London, IV, p. 156.
Baccha torva WILLISTON, 1886, 'Synopsis N. Amer. Syrphidæ,' p. 124.

The two sexes of this species are quite different in appearance, the males lacking the triangular brown costal spot on the middle of the wing,

which is usually present in the females, the females normally lacking the striking yellow spots on the abdomen.

Baccha mexicana, new name

Baccha lugubris WILLISTON, 1891, 'Biol. Centr. Amer.,' Dipt., III, p. 37, (nec Philippi, 1865).

Philippi used the name *lugubris* for a species from Chile. Since I have no record of the name having been changed and the types of Williston's species are before me I propose the above name.

Baccha costata Say

SAY, 1829, Journ. Acad. Sci., Phila., VI, p. 61.
Baccha costalis WIEDEMANN, 1830, 'Ausser. Zweifl.,' II, p. 97.
Baccha tarchetius WALKER, 1849, 'List. Dipt. Brit. Mus.,' III, p. 549.

I have previously indicated the synonymy of *tarchetius* and *costalis*. There can be no doubt that both these names apply to the same species as that which Say described.

Baccha vierecki, new species

Allied to *crocata* Austen but with the second abdominal segment more elongate and bearing an interrupted reddish-yellow fascia. Length, 9 to 10.25 mm.

MALE.—Head yellow; occiput black, cinereous pollinose; vertical triangle black, dull, yellowish brown pollinose behind the ocelli; a small shining black spot on the lunula. Frontal triangle dull above, somewhat shining on anterior two-thirds, brown pilose. Pile of face and occiput pale yellow; on the vertical triangle and upper fourth of occiput black. Cheeks linear; face receding, the tubercle large and long. Antennæ pale orange, the arista black.

Mesonotum brownish black, somewhat shining, brown pollinose, the sides very broadly yellow, the black color divided into three nearly equal parts by a pair of incomplete reddish vittæ; pile sparse, yellowish, becoming brown behind and on the scutellum. Pleura yellow, a broad band of brown covering the metanotum, hypopleura, and metapleura. Scutellum yellow, the hair sparse and fairly long; no ventral fringe. No collar of hair on the front of the mesonotum.

Legs yellow, the posterior femora with a broad, preapical black band. Hair wholly yellowish.

Wings yellowish, the costal border brown on its whole length; alula very narrow.

Abdomen pale orange with blackish markings. First segment yellow, broadly black posteriorly except at the sides. Second segment blackish with a pair of oblique narrowly separated pale orange spots which are widest anteriorly, extend to a little in front of the middle of the segment and are broadly separated from the posterior border, the lateral margins of the segment broadly reddish in front of the pale spots. Third segment pale orange, the posterior third, a narrow median vitta and lateral basal triangles blackish. Fourth segment with a median vitta, subtriangular lateral spots on the apical corners and basal triangles on the sides, blackish; fifth segment black with a pair of very broad dorsal yellow vittæ. On the fourth and fifth segments the

black margins form three vittæ: the median one narrowest and entire; the outer ones produced triangularly forward interiorly and reaching almost to the basal third of the fourth segment. The sides of the third and fourth segments are brownish. Abdominal pile all black. Genitalia brown above and apically, reddish below.

FEMALE.—Front very narrow above, yellow in front of the ocellar triangle and with a rather narrow median brown or black vitta extending almost to the lunula; frontal pile black or brown. The fifth abdominal segment bears a yellow triangle on the anterior corners and the median black vitta tapers slightly to the posterior border and may or may not be continued over the sixth segment; sides of sixth segment broadly brown.

TYPES.—Holotype, male, Barro Colorado Island, Canal Zone, February 13, 1929. Allotype, female, December 22, 1928. Paratypes: one male and four females, Barro Colorado Island, December 22, 23 and 27, 1928, January 7, 1929, February 13, 1929, (Curran); one female, Vista Nieve, Santa Marta, Colombia, December 16, (H. L. Viereck).

Baccha shropshirei, new species

A small black species, the legs and antennæ partly pale; fifth segment with conspicuous, appressed whitish pile. Length, about 8.5 mm.

FEMALE.—Head black, the sides of the face obscurely brownish red; occiput cinereous pollinose; face with more whitish pollen. Front steel-blue in front of the ocellar triangle, the sides very broadly cinereous-white pollinose, leaving a bare vitta which widens slightly anteriorly. Pile of head whitish except the single, obscure row of hairs extending from the ocellar triangle to the vertex. Face receding below the tubercle which is moderately large and has the apex free of pollen. Antennæ brown, the third segment orange below, about one-half longer than wide.

Mesonotum brownish black, the broad lateral margins, a slender median vitta which is abbreviated behind and a broad vitta toward either side cinereous pollinose on steel-blue ground. The broad vittæ diverge posteriorly and reach the inner ends of the posterior calli. Pleura and scutellum steel-blue and cinereous pollinose. Pile of thorax wholly cinereous white; no collar of hair on the front of the mesonotum; scutellar fringe long.

Legs black; apices of femora and basal third of the tibiæ reddish yellow. Anterior tarsi a little broadened and flattened. Hair wholly black except on the coxæ.

Wings brown on basal half, the marginal cell paler basally, apical half cinereous hyaline. Squamæ and halteres pale yellow. Alula large.

Abdomen steel-bluish, with opaque black markings; first segment opaque except laterally; second with a large opaque black triangle broadly separated from the posterior border of the segment and less narrowly from the lateral margins. Third segment with an opaque black triangle of the same general shape as that on the second segment. Fourth segment with a broad, incomplete median opaque vitta and a large, opaque black subtriangular spot on either side, the fifth with a median vitta on the basal two-thirds and an elongate oval, oblique spot extending from the base to the apical corners; sixth segment shining black. Pile cinereous white on the blue areas, shorter and black on the opaque areas, erect only on the sides of the first segment. The abdomen is strongly spatulate, narrowest near the base of the second segment and strongly increasing in width to the apex of the fourth.

HOLOTYPE.—Female, Corozal, Canal Zone, January 16, 1929, (Curran).

Named for Mr. J. B. Shropshire of the Army Sanitary Division, in recognition of his hearty coöperation during my collecting trip to the Canal Zone.

Baccha zeteki, new species

A small black species with very strongly spatulate abdomen, the antennæ and legs partly reddish yellow. Length, 7 to 7.5 mm.

MALE.—Head black, a subtriangular spot of steel-blue on either side of the frontal triangle. Face and occiput cinereous-white pollinose, the moderately large tubercle with its tip bare; blue frontal spots overlaid with silvery-white pollen; front broadly opaque black in the middle, the antennal prominence shining. Pile yellowish white, black on the frontal triangle, vertical triangle and upper fourth of the occiput. Antennæ brown, the third segment yellowish below.

Mesonotum subopaque blackish, the sides shining, the disc with brownish tinge in some lights, the pile brown, not conspicuous. Pleura bluish black, thinly cinereous pollinose, the pile whitish. Scutellum shining, thinly cinereous pollinose, finely whitish haired, the ventral fringe sparse.

Legs brown; apices of the femora, broad bases of the tibiæ and the intermediate segments of the posterior tarsi, reddish yellow, the apex of the first segment of the posterior tarsi only narrowly reddish; basal half of posterior femora often brownish red.

Wings strongly tinged with brown, the stigma brown. Alula large. Squamæ brown. Halteres yellow.

Abdomen shining black, the first segment and basal half of the second rather bluish; second segment with two broad, opaque black bands, the three shining bands of almost equal width; third segment with a very broad, anteriorly convex opaque black band which does not reach the lateral margins and is very widely separated from the posterior margin; fourth and fifth segments with broad, indefinite opaque fasciæ. Pile black; white on the first segment, sides of the second and basal angles of the third and fourth.

FEMALE.—Lower half of front shining bluish except a broad median vitta, the blue color overlaid with thin silvery-white pollen; pile black. Mesonotum toward either side with a more or less distinct white pollinose vitta in front of the suture. Posterior femora often yellow on basal half. Wings brown on almost the basal half, cinereous hyaline apically. Squamæ whitish. Opaque areas on fourth and fifth segments usually more or less divided in the middle.

The abdomen is very strongly spatulate, the second segment cylindrical, of almost equal width throughout, the third segment strongly widening posteriorly and almost as wide as the fourth.

TYPES.—Three males and eight females, Barro Colorado Island, Canal Zone, December 22, 1928, Jan. 8, 10 and 28, 1929, (Curran), and one female, Chapada, Brazil, (Williston Collection). The holotype male and allotype female were taken on January 28, 1929.

Named in honor of Mr. James Zetek, resident entomologist of the Bureau of Entomology and a tireless worker in the interests of the Institution for Research in Tropical America.

Baccha panamensis, new species

Very similar to *zeteki,* new species, but the scutellum is black-haired in the male, partly so in the female, and with very thin brownish instead of cinereous pollen; wings brownish, more grayish apically and posteriorly. Length, 8 to 9 mm.

MALE.—Head black, the face and sides of the front bluish, shining cinereous-white pollinose; middle of frontal triangle opaque black, the antennal prominence shining black. Occiput whitish pollinose and pilose on lower three-fourths, black pilose above; vertical triangle small, blue-black, black-haired. Pile of face black. Antennæ brown, brownish red below.

Mesonotum opaque or subopaque blackish, in some lights with a median brownish vitta in front, in other lights with two brownish triangles anteriorly; pile black. Pleura bluish black, pale yellowish pilose. Scutellum shining black, with very thin brown pollen and sparse ventral fringe.

Legs black, tips of the femora and narrow bases of the tibiæ reddish; second and third segments of the posterior tarsi yellow. Hair black except on the yellow tarsal segments.

Wings brown, the apical third brownish gray, the colors diffuse; alula large. Squamæ white; halteres yellow.

Abdomen shining black. Second segment with a broad, subtriangular band of opaque black behind the middle, which reaches the lateral margins and is more or less produced forward dorsally; third segment with an opaque black, subtriangular spot covering most of the disc but leaving the borders of the segment broadly shining. Fourth segment with the disc obscurely subopaque, the fifth with no opaque areas. Pile black, whitish on the immediate sides of the first segment. Abdomen strongly spatulate, the second segment slightly widening from near its base to the apex, the third strongly widening from base to apex.

FEMALE.—Front shining black, below the middle with a large, subtriangular bluish, white pollinose spot on either side, the pile wholly black. Face with cinereous pile. Hair of scutellum mixed black and whitish. The darker brown color is confined to the basal half of the wing. Posterior femora brownish red on basal half.

TYPES.—Holotype, male, Barro Colorado Island, Canal Zone, December 23, 1928. Allotype, female, December 22, 1928. Paratypes: male, Barro Colorado Island, January 3, 1929, (Curran); male, Ancon, Canal Zone, February 2, 1916, (T. Hallinan).

Baccha nitidula, new species

Black; wings black with the apical fourth or less grayish. Related to *clarapex* Wiedemann but the mesonotum lacks pale pile in front and the pteropleura is black pilose. Length, 8 to 11 mm.

MALE.—Face and sides of front bluish, the former cinereous-white pollinose, its sides broadly yellow in the middle. Frontal triangle shining black, its upper half covered with black pollen, the bluish sides thinly white pollinose. Vertical triangle small, bluish, black-haired. Pile of the frontal triangle, sides of the face and upper fourth of the occiput, black. Occiput cinereous white pollinose and pale yellowish pilose, the black occipital cilia extending downward to the middle of the eyes. Antennæ brown, the third segment yellowish basally on under surface.

Mesonotum shining black, thinly brownish pollinose except laterally, in the middle with traces of two paler brown vittæ. Pleura cinereous-white pollinose

yellow pilose. Pile of the mesonotum, pteropleura, upper edge of the mesopleura and scutellum, black, the scutellum with black ventral fringe.

Legs black; tips of femora and bases of tibiæ reddish, posterior tarsi pale yellow, the apical segment brown, the basal segment black on the basal three-fourths. Hair black; yellow on the anterior four tarsi and pale segments of the posterior pair.

Wings blackish brown, the apical fourth or less cinereous. Alula large. Squamæ brownish yellow. Halteres yellow.

Abdomen shining black; second segment with a broad, opaque black fascia behind the middle which is usually produced forward dorsally to the basal third of the segment; third segment with a large, diffuse, subtriangular opaque black spot dorsally. Hair black, whitish on the immediate sides of the first segment and the first sternite. Abdomen strongly spatulate, the second segment cylindrical, slightly widening to the apex, the third more than twice as wide apically as basally.

TYPES.—Holotype, male, Barro Colorado Island, Canal Zone, December 22, 1928. Paratypes: three males, Barro Colorado Island, December 22, 1928 and February 13, 1929, (Curran); one male, Rio Madeira, Abuna, Brazil.

There are two specimens from Chapada, Brazil (Williston Collection), which may belong here but they have no black pile on the pleura and have the notopleura pale pilose as in *clarapex* Wiedemann. They differ from *clarapex* in having only the apical fifth of the wing grayish and the first posterior cell not brown.

Baccha atypica, new species

A large, orange-colored species with black markings; wings yellowish brown in front; abdomen strongly spatulate; antennal segments of almost equal length. Length, 15 mm.

FEMALE.—Head orange; sides of face and the occiput cinereous-white pollinose; opposite the ocellar triangle and in front of it an opaque black spot; the lateral ones extending backward to the vertex and overlaid with whitish pollen. Pile of face short and fine, pale on lower half, black above; on the front very short, sparse, black; on the occiput long and pale yellowish. Antennal swelling large, its upper surface and a broad stripe between the antennæ blackish. Face moderately retreating, the tubercle large. Cheeks as wide as first antennal segment. Antennæ orange, the third segment mostly brownish, on the inner side all the segments of about the same length.

Thorax orange, shining, the mesonotum with four opaque black vittæ, the median pair broadly united opposite the inner ends of the suture and curving outward posteriorly to unite with the outer pair, the outer ones interrupted at the suture; on either side, immediately behind the suture, is a blackish spot. The pale vittæ separating the black ones are yellow pollinose. The pleura are practically bare while the hair of the mesonotum and scutellum is extremely short and black. The scutellum bears a rusty reddish or ferruginous band which may leave only the margins yellow; no ventral fringe.

Legs orange, the apical three segments of the posterior tarsi reddish brown; anterior tarsi broadened and flattened.

Wings brownish yellow in front of the third vein, in the first basal cell and in the

anal cell, elsewhere cinereous hyaline. Upper squamal lobe yellowish brown. Halteres orange.

First abdominal segment pale orange, the second and third ferruginous with the base broadly paler; fourth and fifth segments black with the base broadly and the lateral margins pale orange, the black color containing a pair of slender orange vittæ which do not reach the posterior margin of the fifth or sixth segments nor the anterior orange band, but on the fourth segment the vittæ reach the pale fascia in front and are divergent posteriorly. The seventh segment is black except laterally. Hair black. The abdomen is very strongly constricted on the basal half of the second segment, widening from the middle of the second segment to the apex of the third.

MALE.—Frontal triangle reddish yellow. Vertical triangle dull black on anterior half, brownish yellow pollinose behind. Metanotum mostly black. Tibiæ becoming pale yellow apically, the anterior tarsi less broadened. Abdomen ferruginous with the bases of the segments broadly yellowish, the vittæ obsolete on the fourth segment. Genitalia reddish yellow, large, extending forward under the abdomen.

TYPES.—Holotype, female, Chapada, Brazil, November, (Williston Collection). Allotype, male, Rio Caiary-Uaupes, Amazonas, Brazil, 1906, (H. Schmidt).

This is the species recorded by Williston in his paper on Brazilian Syrphidæ as *conjuncta* Wiedemann. In *conjuncta* the abdomen has parallel sides but much the same color as in this species. This is a very distinct species and a new genus may have to be erected for it. It has been recorded from British Guiana by Hine as *conjuncta* Wiedemann.

Baccha prenes, new species

Related to *variegata* Macquart but without four yellow vittæ on the third abdominal segment. Length, 12 mm.

MALE.—Face and frontal triangle reddish yellow, the former darker in the middle and with a shining black spot above the middle. Pile black, yellowish on the lower third of the face and on the lower three-fourths of the occiput. Occiput black in ground color, cinereous pollinose except above. Vertical triangle black, brown pollinose. Face rather strongly retreating, the tubercle large. Antennæ brownish red, brownish above.

Mesonotum shining black, with two very broad grayish-brown vittæ on the anterior three-fourths, the lateral margins broadly yellowish. Pleura shining reddish yellow, a very broad greenish black band extending obliquely across the posterior part; pectus and metanotum metallic greenish black. Scutellum reddish yellow with sparse, long black hair and ventral fringe. Pile of mesonotum sparse, brownish yellow, becoming blackish posteriorly.

Legs reddish yellow, the posterior femora with a broad preapical brown band, their tibiæ with the apical third brown and a very broad brownish band before the middle. Hair mostly black, yellow on the tarsi, except the basal half of the first segment of the posterior pair. Middle coxæ brown.

Wings strongly tinged with yellowish brown; alula very narrow. Squamæ brownish yellow. Halteres reddish, the knob brownish.

Abdomen dull brownish black, the lateral margins and broad apices of the segments shining. First segment broadly yellow laterally. Second segment with an

elongate, oblique yellow spot on either side, the front end of the spot near the middle of the segment and more pointed than the outer, posterior end, the sides of the segment broadly reddish on the anterior half. Third segment with yellow spots which are wider and more pointed anteriorly, their inner edges parallel, situated mostly in front of the middle of the segment. The yellow spots on the fourth segment are very similar to those of the third, reach the base of the segment and are slightly produced backward on their inner posterior ends. Fifth segment with two pairs of yellow spots, the inner ones forming a pair of elongate, posteriorly tapering triangular vittæ, the outer pair oval and narrowly separated from the inner ones at the base of the segment. Hair black, on the sides of the first segment, brown. Genitalia shining black.

HOLOTYPE.—Male, Rio de Janeiro, Brazil, November, (Williston Collection).

This species has been recorded by Williston as *variegata* Macquart.

Baccha murina, new species

Related to *prenes* but with longer and differently marked abdomen and wings. Length, about 16 mm.

MALE.—Face and front pale orange, the front with a polished black spot above the antennæ. Pile black, yellow on lower fourth of face and lower three-fourths of the occiput. Vertical triangle black, with brownish pollen; occiput black in ground color, cinereous pollinose. Face strongly receding below the tubercle. Antennæ reddish.

Mesonotum blackish, thinly brown pollinose, with three cinereous vittæ, the median one slender and entire, the outer ones broad and abbreviated posteriorly; the lateral margins broadly yellow; pile inconspicuous. Pleura yellowish, with a broad, oblique greenish-black band on posterior third, the sternum and metanotum similarly colored. Scutellum yellow, the pile inconspicuous, yellowish; no ventral fringe.

Legs reddish yellow; posterior femora brownish red, their tibiæ and the first segment of their tarsi, brown; anterior four tibiæ, anterior femora, and the tarsi, yellow-haired, the basal segment of the posterior tarsi black-haired, except the tip.

Wings tinged with brown, the anterior border darker on the basal half; alula very narrow. Squamæ yellow; halteres with brown knob.

Abdomen black and reddish, rather shining. First segment reddish yellow; second reddish on basal half, behind the middle with a triangular yellow spot on either side, its inner end pointed. Third segment rather stained but apparently mostly brownish red with a median vitta, posterior border and lateral margins black. Fourth segment with a reddish spot on either side, reaching to the middle of the segment and leaving a median vitta and the lateral margins black. Fifth segment wholly shining brownish black. Hair black. Genitalia shining black.

HOLOTYPE.—Male, Chapada, Brazil, November, (Williston Collection).

This species was labelled *variegata* Macquart in the Williston Collection.

Baccha mentor, new species

Related to *prenes*, new species, but the posterior tarsi are brown with the basal segment rather reddish. Length, about 12 mm.

MALE.—Face and front pale orange, the front brown pilose and with a small shining black spot above the antennæ. Occiput and vertical triangle black, the latter yellowish pollinose, the vertical triangle brown pollinose and black-haired; occipital cilia brown. Face very strongly receding below the tubercle. Antennæ reddish yellow.

Mesonotum shining black, with a pair of broad yellowish-brown pollinose vittæ, the lateral margins broadly yellow. Pleura shining yellow, posteriorly with a broad, oblique metallic green band, the metanotum and metasternum of the same color. Pile short, yellowish; scutellum yellow, with a few black hairs apically, without distinct ventral fringe.

Legs reddish yellow; a broad preapical band on the posterior femora, apical third of their tibiæ and a pre-median band and the posterior tarsi, brown, the basal segment of the posterior tarsi brownish red. All the coxæ yellow.

Wings with brown tinge; alula absent. Squamæ yellowish, the border tinged with brown. Knob of halteres brown.

Abdomen shining brownish black. First segment broadly yellow on the sides. Second segment with the sides very broadly red from the posterior fifth to well in front of the middle and also at the base. Third segment very broadly reddish on the sides from the base to the apical third; fourth segment similar; on the third and fourth segments the posterior margin of the reddish color is triangularly emarginate with black on the inner part. Fifth segment wholly black. Pile black, yellow on the sides of the first segment. The abdomen is very long and slender.

HOLOTYPE.—Male, San Bernardino, Paraguay.

Baccha macer, new species

Related to *mentor*, new species, but the wings are hyaline, the third vein curved forward beyond the middle of the apical cell, etc. Length, 11 mm.

MALE.—Face and front yellow, vertical triangle shining black; occiput cinereous-white pollinose. Pile yellowish. Antennæ reddish yellow, very short.

Mesonotum shining black, the sides and scutellum pale yellow, pile yellow, short and fine. Pleura yellow in front, shining greenish black behind. Sides of scutellum brown.

Legs yellow; posterior femora brown with a broad median band and the apex reddish yellow; posterior tibiæ brown with the basal fourth yellow, their tarsi brownish red with the apical two segments brown. Pile yellow, black on the posterior tibiæ and tarsi and on the apical brown band on the posterior femora, the black abundant on the under surface of the femora. Middle coxæ brown.

Wings hyaline; stigma brown; apex of wing tinged with brown along the costa. Alula absent. Squamæ with brown border. Knob of the halteres brown.

Abdomen shining brown with pale yellow markings. Sides of first segment broadly pale yellow, the second and third each with a broad, interrupted basal fascia. Second segment with a broad, narrowly interrupted pale fascia just behind the middle, the third with a similar fascia at the middle. Fourth segment yellow on almost the median half, with a median brown vitta and brown triangles projecting posteriorly along the sides of the segment. Genitalia produced and rather angulate on right side. The abdomen is very slender, widest at the apex of the fifth segment.

HOLOTYPE.—Male, San Bernardino, Paraguay.

Baccha deceptor, new species

Related to *stenogaster* Williston but the mesonotum is unicolorous and not reddish or yellow laterally; face with median black vitta except below. Length, 9 to 10 mm.

MALE.—Face yellow on the sides with a median triangular black vitta extending downward to the lower edge of the tubercle, the pile short and yellow. Frontal triangle blue-black, the sides pale yellowish pollinose, the pile black. Occiput bluish black, cinereous-yellow pollinose, pale yellowish pilose, the hair on the lower half scale-like and, in some lights, silvery. Vertical triangle blackish blue, black-haired. Antennæ brownish, broadly reddish or orange below.

Mesonotum shining black, the median third with rather thin grayish pollen which encloses two or three darker vittæ on the disc, the sides in front of the wings also pale pollinose. Pleura shining black, with bluish tinge, the posterior third of the mesopleura and a spot on the upper border of the sternopleura yellowish. Scutellum shining black, practically bare.

Legs reddish yellow; anterior coxæ brown except the apex, the middle pair black on outer surface; posterior femora brown with paler median band and apex and with yellow base; posterior tibiæ brown with a broad, median reddish band; tarsi brownish. Hair black.

Wings cinereous hyaline; stigma dark brown. Alula rather small. Squamæ yellow. Knob of halteres brown.

Abdomen long and slender, shining bronze-black, with some violaceous reflections and yellow markings. First segment with the sides pale yellow in front. Second segment beyond the middle with a subrectangular yellow spot on either side; third segment with a pair of basal and a pair of median spots similar in shape and size to those on the second. Fourth segment on either side with a very large, semi-oval spot resting on the base and reaching about to the middle of the segment. Hair black, whitish on the sides of the first segment.

FEMALE.—Front bluish, transversely wrinkled, the sides pollinose to the level of the ocelli. Pale spots on second abdominal segment reduced in size or absent.

TYPES.—Holotype, male, St. Croix Island, February 27, 1925. Allotype, female, St. Thomas Island, February 25, 1925, (F. E. Lutz). Paratypes: three females from Adjuntas, Porto Rico, June 5–7, 1915 and June 8–13, 1915, (Lutz and Mutchler); one female from St. Thomas, February 22, 1925, (F. E. Lutz).

These are the specimens recorded in my paper on the 'Diptera of Porto Rico and Virgin Islands' as *B. stenogaster* Williston. A comparison with Williston's type, which was from Brazil, shows that the West Indian form is quite distinct.

Baccha chapadensis, new species

Related to *mentor*, new species, but more robust, the abdomen shorter and more strongly widened toward the apex. Length, 11 mm.

FEMALE.—Face and lower two-thirds of front pale orange in ground color, the tubercle below the middle of the face. Front dull orange, the upper third opaque blackish, emitting a slender, brownish vitta which extends halfway to the antennæ; antennal tubercle shining, with a shining black spot in front. Occiput cinereous

pollinose and wholly yellow pilose; front and upper fourth of the face black pilose. Ocelli situated at upper third of the front. First two antennal segments reddish, the third missing.

Mesonotum shining brownish black, with three cinereous white vittæ, the median one narrow and entire, the outer ones abbreviated behind; lateral margins broadly whitish yellow; pile short, yellowish. Pleura brownish black, thinly pale pollinose; mesopleura, a large spot on the sternopleura above and another above the front coxæ, pale yellow. Scutellum yellow, with short, black hair apically and short, not conspicuous ventral fringe.

Legs yellow, a broad, preapical band on the posterior femora, apical two-thirds of their tibiæ and the basal three-fourths of the first segment of their tarsi, brown; hair yellow, black on the dark portions.

Wings hyaline, the stigmal cell luteous. Alula large. Squamæ yellow; knob of halteres reddish brown.

Abdomen shining black, with reddish markings. First segment pale yellow with brown posterior margin. Second segment black with a broad, interrupted reddish fascia behind the middle. Third segment reddish on basal two-thirds with a broad median black vitta; the fourth similarly colored on the basal half. Fifth segment with four reddish vittæ, the median pair linear, outer pair broad, none reaching the apex of the segment; following segment shining black. Hair black, yellow on the sides of the first segment.

HOLOTYPE.—Female, Chapada, Brazil, (Williston Collection).

Baccha lineata Macquart

MACQUART, 1846, 'Dipt. Exot.,' Suppl. 1, p. 139 (f.).
Baccha tropicalis TOWNSEND, 1897, Journ. N. Y. Ent. Soc., V, p. 172.

A specimen of *tropicalis* Townsend agrees perfectly with Macquart's figure and description and there is little doubt that the synonymy is correct. This seems to prove that *lineata* came from Texas. Macquart gave the locality as Mexico or Texas. The species is rare in collections.

Baccha livida Schiner

SCHINER, 1868, 'Novara Reise,' Dipt., p. 343.
Baccha lineata HINE (not Macquart), 1914, Ohio Naturalist, XIV, p. 336.

Hine considered *livida* to be the same as *lineata* but in this he was wrong, as is indicated above.

Baccha incompta Austen

AUSTEN, 1893, Proc. Zoöl. Soc. London, p. 147.
CURRAN, 1928, 'Sci. Surv. Porto Rico and Virgin Islands,' XL, pt. 1, p. 36.

It is possible that the specimens from Porto Rico, and also one from the Republic of Honduras, may represent a distinct species, but inasmuch as I have less than a dozen specimens all told I hesitate to do more than point out a couple of differences. The tibiæ of the forms mentioned

above are brown with reddish base and apex and the brown fascia on the wing is very much narrower and not subtriangular, as is the case in specimens from Panama and British Guiana.

Baccha adspersa Fabricius

FABRICIUS, 1805, 'Syst. Antl.,' p. 200.
?Baccha punctata SHANNON, 1927, Proc. U. S. N. M., LXX, Art. 9, p. 11.

Shannon's type has not been examined but the description agrees very well with specimens of *adspersa* form Brazil and Panama. *B. signifera* Austen may also be only an aberrant form of this species.

Baccha obscuricornis Loew

LOEW, 1863, Berl. Ent. Zeitschr., VI, p. 15, (Cent. III, No. 26).
Baccha cognata LOEW, 1863, Berl. Ent. Zeitschr., VI, p. 15, (Cent. III, No. 27).

The type of *obscuricornis* is a female from Alaska. *B. cognata* was described from a male from New York. These specimens represent the two sexes of one species.